DOCUMENT RESUME

ED 429 950 SP 038 442

AUTHOR Moon, Bob
TITLE Towards a New Generation of Open Learning Programmes in Teacher Education: Lessons for Us All.
PUB DATE 1998-04-00
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Diego, CA, April 13-17, 1998).
PUB TYPE Opinion Papers (120) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Uses in Education; Educational Change; *Educational Technology; Elementary Secondary Education; Foreign Countries; Higher Education; *Online Systems; *Open Education; Preservice Teacher Education; Teachers; *Telecommunications

ABSTRACT

This paper argues that over time, future teachers will be offered and participate in more developed forms of professional development than is currently expected. The professional development will be significantly based on their own and local schools, and online electronic communication will be an important aspect of this increasingly international experience. Given this scenario, the paper argues that all forms of flexible and open learning will play increasingly more significant roles in teacher education. The paper suggests that traditional institutions developed around teacher education to serve the needs of the 20th Century are wholly inadequate for the 21st Century; the implicit and explicit models of development are insufficient to meet the changed circumstances of most national contexts; and developing a research agenda to inform the processes of institutional change and rebuilding is an urgent priority. The paper explores the scenario for development by emphasizing the interrelated but contrasting movements toward: globalization of debate provided by the emergence of new interactive technology; localization of action through giving greater prominence to making the school a more central site for learning in teacher education; and emergence of new forms of professional communities of practice working through new modes of communication. The paper concludes by exploring key dilemmas that will occur in the transformation of teacher education and institutions of teacher education in the coming decades. (Contains 54 references.) (SM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 429 950

School of Education

Towards a new generation of open learning programmes in teacher education: lessons for us all

Bob Moon
Professor of Education
Director, Centre for Research in Teacher Education,
School of Education, The Open University,
Walton Hall, Milton Keynes, MK7 6AA, United Kingdom

Presented to the American Educational Research Association Conference

San Diego

April 12th–17th 1998

as part of the Symposium title:

Global reform in teacher education: towards a new generation of open learning programmes for pre-service teacher education

BEST COPY AVAILABLE

Tel: + 44 (0)1908 652374
Fax: + 44 (0)1908 652218
E-mail: R.F.MOON@OPEN.AC.UK

SP038442

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

B. Moon

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Abstract

The central arguments of the paper are threefold:

- first, that the 'bricks and mortar' institutions developed around teacher education to serve the needs of the twentieth century will be wholly inadequate for the twenty first;

- secondly, that the implicit and explicit models of development, derived from such bricks and mortar institutions, are insufficient to meet the changed circumstances of most, if not all, national contexts;

- thirdly, that developing a research agenda to inform the processes of institutional change and rebuilding is now an urgent priority.

The scenario for development is explored with a focus on the interrelated but contrasting movements towards:

- the globalisation of debate in part provided by the emergence of new interactive technology;

- the localisation of action through giving greater prominence to make the school a more central 'site for learning' in the teacher education process;

- the emergence of new forms of professional 'communities of practice' working through new modes of communication.

This paper concludes by an exploration of key dilemmas that will be faced in the transformation of teacher education and the institutions of teacher education in the coming decades.

Scenario

Teacher education across the world is undergoing significant rethinking and reform. Most, if not all, countries have teacher education at the forefront of national policies. Expanding populations continue to make huge demands on the institutions responsible for preparing teachers. In South Africa, for example, pre-service teacher training expanded at 15% per year in each of the last three years, and training by distance education by 23% (South African Ministry of Education, 1996) . The competition from a range of increasingly knowledge based occupations is threatening the supply of teachers in many countries. In the UK in 1997 the recruitment of teachers for subjects such as mathematics, technology and languages fell short by over twenty per cent. In California (USA) decisions to reduce class sizes in K1–3 schools has created a huge teacher demand in a context where recruitment was already problematic. The quality of teacher education is also now widely debated, professionally, and more generally in the media. Finally there is now widespread recognition that teacher education must be a career long process of development, at least equal in form and status to that enjoyed in law, medicine and comparable professional groups. The scale of this demand, if recognised globally, is enormous.

The central arguments of this paper are threefold:

- first, that the 'bricks and mortar' institutions developed around teacher education to serve the needs of the twentieth century will be wholly inadequate for the twenty first;

- secondly, that the implicit and explicit models of development, derived from such bricks and mortar institutions, are insufficient to meet the changed circumstances of most, if not all, national contexts;

- thirdly, that the new generation of open learning systems will inevitably be integrated into the conventional institutional structures of teacher education, developing a research agenda to inform this process is now an urgent priority.

Two important points of qualification; firstly, in making these arguments I am not suggesting the demise of the existing institutional structures. I do not subscribe to the school of thought which wishes to reverse the world-wide trend towards making the University an important base for educating teachers. I do, however, believe that such institutions must adjust and change to become part of a broader landscape if we are to significantly improve the access and opportunity that teachers have for dignified, relevant and high quality professional development. The use of the word dignified may seem out of place. Yet I continually come across teachers trying to improve their knowledge and skills in the most appalling of circumstances. A group of over three hundred teachers of literature in an unheated, poorly lit gymnasium in the Russian province of Nivishny Novorgod. The teacher of English who set off each morning, and returned each evening, on a three hour journey in massively overcrowded buses, from Beni Suef to reach the in-service course in Cairo. Primary teachers in a London borough meeting in a 'pub', the only free venue, to plan a literacy campaign. All over the world, just as children and schools are under-developed and under pressure, so the teachers take the strain.

This raises my second point. The literature and ideas of teacher education resolutely accept the division between the developed, mostly northern countries, and the resource constrained regions to the south. This is the colonial inheritance of the nineteenth century transposed into the aid and dependency systems of the present century. But this will change, and change rapidly, in the coming decades. National educational systems will increasingly co-exist on greater terms of equality than ever before. The forms and quality of teacher education must evolve in similar ways with the likelihood that development and co-operation will go beyond the boundaries of national systems.

The institutional structures of teacher education have been developed in this century primarily to provide a pre-service training for the expanding teaching force in national, state, systems of education. The focus was usually on the primary sectors and only in the latter part of this century has formal teacher education touched those preparing to teach in secondary, often elite institutions. The way such institutions have evolved, particularly the way they have found their way into the embrace of the Universities, has been much discussed (Neave, 1992). And they have certainly, in many countries, come to embrace a much broader vision of teachers professional development than was originally the case. Few, however, would suggest that the scale and nature of demand can be met by the present structures.

A number of factors, however, are combining, to open up new possibilities. First there is the increasing recognition that the 'school' should be a more central part of the development process. Unlike medicine, as the status of teacher education grew in the latter part of the twentieth century so the process became less, rather than more, school based (Moon, 1996). In many countries, where professional development became almost synonymous with higher degrees and diplomas, teachers often left their school for a year or more at a time to obtain the new qualification. Perhaps the move away from the very instrumental apprenticeship that characterised much teacher education was a necessary correction. But it has served its time. For some years now there has been a powerful advocacy for a more school based, action oriented fusing of theoretical and practical perspectives on the development process. In a number of countries this is coming increasingly to command the interest and respect of policy makers. Teacher support needs to acknowledge the authenticity of the context in which teachers work, however economically or philosophically challenged that might be.

Secondly there is the beginnings of a common global interest in the educational foundations of the teaching profession. Sharp contrasts remain. What a teacher can expect from the Danish Royal School of Educational Studies is very different from someone playing a parallel role in the Eastern Cape Province of South Africa or the Skhodra district of northern Albania. The debate about teacher education is, however, a global one. International organisations such as UNESCO and the World Bank, despite many caveats, have played a role in this process. The idea, however, that the twentieth century models of teacher education created in the richer countries should be simply replicated all over the world is becoming increasingly challenged, a theme I want to make further reference to below.

Thirdly, there is the explosion of new forms of communication with the widespread adoption of older technologies such as television and the, possibly much quicker take up, of newer interactive technologies associated with the growth of the internet and the world wide web. Almost at a stroke (the WWW is a development of just half a decade!) significant new horizons have been opened up. The previously cherished and separate worlds of publishing, broadcasting and, dare we say it, even 'The University' are all challenged and threatened by a revolution that arguably is already more significant that Guttenberg.

Finally there is an increasing acceptance that learners of all sorts need a rich and diverse range of prompts and stimuli. The passive lecture format, even supported by some personal seminar support, looks increasingly threatened as a pedagogic strategy. The arrival into mainstream thought of what some have termed 'the cognitive revolution' has its echoes in the way we think of teachers learning (Bruner, 1996). Yet the institutions of teacher education, like most schools, with classrooms and lecture theatres are premised on the older forms of pedagogy. Although over-hyped in some quarters new ways of accessing information and forming dialogues create opportunities to revisit, review and rehearse learning in ways that hitherto were logistically and economically impossible.

In summary, therefore, I am suggesting that over the medium term future teachers will expect to be offered and participate in more developed forms of professional development than is currently expected, that this will be significantly based in their own and local schools, that 'on-line' electronic communication will be an important aspect of this increasingly international experience. Given this scenario it seems inevitable that all forms of flexible and open forms of learning will come increasingly to play a major role in teacher education.

The ugly duckling of distance education emerges swan-like in the high tech environment of 1990s open learning. Teachers, of course, have been one of the main consumers of open and distance learning, interchangeable terms that need some conceptualisation. In the early parts of this century correspondence colleges proliferated in all parts of the world. In the former USSR, still today in China and throughout the apartheid era in South Africa, distance education was a major means of providing teacher education. It represented a first generation attempt to create greater flexibility, greater access, but it was most often a poor relation to the real thing. Inadequate resources and insufficient personal support gave many correspondence course a bad name; an image that lingers on today.

A second generation is represented by the development of specialist 'Open' Universities or Colleges, primarily in the 1970s and 1980s. The British Open University was one of the first of these dedicated institutions, and its influence is seen in the development of a number of similarly national institutions across the world. The open universities added to the correspondence method, the resources of an emergent multi-media industry (television and radio) and, perhaps most significantly, argued that to think of anything as 'wholly at a distance' was mistaken and, therefore, that allied to high quality teaching resources, there needed to be some form of local 'face to face' mediation. They also broadened the concept of distance education towards the greater reach of open learning. Impediments to access were seen as more than geography. Women at home, men and women tied to 9–5 earning, could live next door educational institutions but without the opportunity to benefit from them. Teachers more than most profited from the open universities where they existed. In the UK the transformation of the teaching profession into effectively an all graduate one was realised by a significant input from the Open University in the 1970s. In the 1980s and 1990s a similar process was enacted in the establishment of a widely taken up masters programme and the introduction of a national pre-service qualification which significantly opened up access to teaching (Moon and Shelton Mayes, 1995a, 1995b; Bourdillon and Burgess, 1998).

The support provided for teachers was given a much stronger focus and conceptualised in a variety of ways. Leach (1996a), for example, has summarised this in suggesting six functions that can be served:

1 Support should provide model learning environments.

2 Support should build on existing frameworks as far as possible and be consonant with the culture in which it is developed.

3 Support should be developmental and exploratory, providing experience of a wide variety of teaching and learning opportunities.

4 Support should recognise and build on the variety of professional experiences of its participants.

5 Support should acknowledge both the private and professional aspects of learners' experiences and their interconnectedness in the development of learning.

6 Support should have a firm base in schools and classrooms.

(pp. 124–125)

Now emerging is a third generation of open learning programmes exploiting the interactivity and communicative possibilities of the new technologies and focussing more strongly on school based development. Not all of these are working in state of the art high tech environments. The Kualida Project in Albania, for example, in focussing on the in-service training of teachers in History, Geography, English, French and Citizenship is built strongly around the concept of collaborative development utilising locally based high quality television and text resources. The course structure, however, has been planned in such a way

that it can accommodate introduction of new technologies where technically feasible (Leach and Lita, 1998).

The 'Open Universities' provided a personal interactive element, but in small measures. For reasons of cost tutorials are generally infrequent and groups relatively large. Reliance on one way synchronous communication represented the main staple of teaching provision. The new programmes, whilst perhaps retaining a face to face tutorial element, are significantly enhancing this through the highly personal new modes of electronic conferencing.

The global dimension of open learning in teacher education

Open learning, like teacher education, is therefore in a phase of rapid evolution. New types of open learning programmes are emerging, built around the applications of new telecommunications and computer technology (Nipper, 1989); and characterised by markedly increased interactivity, more control for learners, global networking, and with the possibility of working within a highly cost effective environment (Pelton, 1991). Bates (1991) has contrasted these with earlier models of programmes that developed during the twentieth century. These he sees as exhibiting the use of 'one way' media such as text, broadcasting, cassettes, with 'two-way' communication provided by correspondence tutors or the more resource intensive and more expensive, 'face-to-face' tutorials. The key aspect of the third generation of courses, destined to mushroom in the next millennium, is the fusing of the one-way/two-way dimensions of communication with forms of interactivity hitherto undreamt of. It follows that the divide that has existed between open, often distance, learning and conventional, bricks and mortar institutions will narrow significantly.

Over the past two decades there have been numerous analyses of the potential of open learning in teacher education from regional, national, and international perspectives. In Europe the Treaty of Maastricht, which extended European co-operation into the field of education, makes specific reference to the importance of more flexible forms of provision (para. 126). In South Africa, a national audit of teacher education following the 1992 elections, advocated that:

> teacher education needs to be conceived of as an open learning system which enhances access to professional lifelong learning through a variety of delivery medias and accompanying learner support.
>
> (p. 14)

A World Bank publication (Perraton and Potashnik, 1996), prepared for a colloquium on teacher education through distance learning in Toronto in June 1997, suggested that imaginative forms of distance education were essential if the needs of the sixty million teachers in the world were to be met.

One of the most recent international publications dedicated to teacher training has come from the International Council for Educational Media (Farkas, et al., 1993). Under the title 'From Smoke Screens to Satellite' the authors suggest there is a paucity of literature. They argue for greater research and development given that: 'whatever the forms and modalities, it is obvious that these new systems of training and in-service training of teachers are here to stay and will be more and more needed in developing and industrial countries' (p. ii).

A further international survey (Perraton, 1993) explores a diverse range of distance education contexts for teacher training, primarily with an orientation towards the developing world. In concluding chapters Perraton examines the costs and effects of distance education and looks at the conditions for success in projects linking teacher education and distance programmes. He sets out four essential framing factors for consideration. First, the importance of establishing a clear relationship between distance education programmes and the regular

arrangements to support and train teachers. Second, the need to build up an appropriate expertise in the practice of distance education. Third, that courses are more effective if they contain a variety of media. Finally, in looking across a range of case studies, he finds that success is crucially dependent on taking account of the context in which students are learning and the particular needs they bring to the process.

The developing range of methodologies

Communications in open learning can now be achieved through an expanding range of methodologies. The success of a programme often depends on the way these methodologies are interrelated and, as noted above, a crucial concern is the specific context within which implementation will take place. Well tried methodologies can have as significant a role to play as new technological applications.

Reddy (1986), for example, has suggested that in certain contexts, and he is referring to the smaller island nations of the South Pacific, *radio* remains most effective, quickest, and most cost effective of mediums. But he is critical of the still popular belief that radio can be seen as a substitute for face-to-face communication. He argues strongly that:

> ... radio is only an aid, a powerful resource ... its usefulness is maximized if it is programmed to do those things which a teacher cannot do in an interesting manner. Radio is at its best when it is used to excite the imagination of the learner.
>
> (p. 34)

This documentary, rather than instructional, focus has been adapted by the Open University School of Education in the UK using publicly broadcast radio as a background resource for all educational programmes rather than as a specific teaching aid for specific courses. *Audio cassettes*, however, can serve both an instructional and documentary purpose and has a very real advantage in flexibility of use. The almost universal availability of walkmans (and the increased use of radio cassettes in cars) suggests that the flexibility of use offered by audio-cassettes is also likely to develop further. Audio versions of text materials, 'talking books', previously a minority provision for the elderly and those with sight impairments, are now increasingly used. The lifestyles of many people, including teachers, requires the flexibility of opportunity, for example in commuting, that comes from audio availability of text.

Interactive radio has been developed in a number of countries. The US Agency for International Development, for example, has supported projects in Africa, Asia, and Latin America, although with varied success. Certain types of course content, for example mathematics, appeared to work more successfully with this medium (Douglas, 1993). One of the most notable and interesting examples is the 'Mathematica Interactiva' programme for primary schools in Venezuela.

Television has generated a voluminous literature in open and distance learning much of which now seems obsolete in the forward progress of technology. The excitement of the moving image, as with sound fifty years earlier, led many to overstate the impact of the media and fail to note the critical lack of interactivity. Over-ambitious perceptions of the power of television still exist in many countries despite well established, and well grounded, arguments against overstating the impact television can have. There is also some evidence that inappropriate uses of television are sustained in those contexts where television is only recently becoming available. Van Horn and Doris (1993) argue that television is one media source that can be used effectively if its limitations are recognised. Laurillard (1990) has shown, in a detailed evaluation of the use of television within course design, the form that such limitations can take.

Evaluations of *interactive television systems* are mixed with little evidence of applications in pre-service or in-service training for teachers. Research in Utah, USA, on the use of interactive television with teachers enrolled on a special education methods course shows that in terms of course outcomes the distance education groups reached similar levels of achievement as on-site groups (Egan, et al., 1993). The off-site teachers, however, gave more negative course evaluations, particularly with respect to the sort of feedback they experienced. More successful claims, again in the USA, have been made by Russell (1993), Platten and Bruce (1987), and Lombard (1991). In Australia a number of projects developed under an umbrella organisation, the Regional Telematics Education Consortium (RTEC), established to promote teacher education in rural Victoria. Whilst claiming a measure of success the evaluation evidence (Prain and Booth, 1993) pointed to significant difficulties on the part of presenters and participants.

> Interactivity is achieved traditionally in the classroom through subgroup or whole class discussion, written feedback and personalised attention in one-to-one talk between teacher and student. Presenters whose classroom teaching practices were built around these ways to establish and sustain interactivity believed satellite teaching was restrictive in this area ... participants commented about the lack of personal and group interaction too ... Where presenters and participants diverged was over the technical problems they encountered ... only two presenters wrote about technical problems ... whereas a large number of participants did. For participants the problems detracted from the success of communication by electronic means.
>
> (p. 8)

Despite, therefore, some of the earlier hopes for the use of interactive television in teacher education (see, for example, Porter 1982) the benefits have only partially been realised. Technical, logistical, and organisational factors still inhibit development and the benefits of visual contact may be outweighed by the static nature of current settings. The experience appears to reflect two recurring dangers in open and distance systems:

(1) the overemphasis of, and over-reliance on, a new technological medium;

(2) the insufficiently adapted application of teaching methods from an established context to the context situated by the new technology.

Exploiting the potential of interactive technologies

The increased potential of electronic communications for teacher education has led to a spate of national and international discussions. The Council of Europe (1989a, b), OECD (1992), and US Senate Committees (Congress of the USA, 1993) have all explored the issues in depth. The focus of these discussions embraces both the training needs of teachers in utilising educational technology for pedagogic purposes, and the way these technologies can be used in the training process itself. This distinction is an important one that will be returned to later in the paper. In a paper presented in the USA to a national conference on 'Creating the Quality School' Baker and Patti (1993) argue for teacher education programmes to include preparation in the use of electronic classrooms. Open learning centres, they suggest, incorporating all possible forms of telecommunications should be established for teachers already in service. Fulton (1993) and Hedberg and Harper (1993) are recent examples of analyses that link developments in educational technology to the changing character of teacher education.

Computer applications are developing so quickly that well grounded evaluations of systems are quickly rendered redundant. In teacher education there have been a number of critiques of teacher awareness and skills with the new technologies. Recent reports in all parts of the

world have pointed to the unrealised potential of new technology. Similar pleas have come from regions and countries less well endowed with equipment and resources. Kuznetsov (1991), for example, has analysed the significance of new technology to teachers in Russia. There is, therefore, an urgent need in teacher education, at pre-service and in-service levels, to train teachers in the use of the technologies. Teachers for their own classroom use need to be trained in the use of new technologies (Buchanan, 1993). Open and distance education have a role to play particularly in 'training the trainers'.

Attempts in this area go back more than a decade (McKinnon and Sinclair, 1987; Rhys, 1988; Robson *et al.*, 1992; Veen *et al.*, 1994) but only recently has the technical potential matched the need. The UK's OU teacher training project which began in 1994 is making extensive use of computer conferencing and Chile's Enlaces Project (Potashnik, 1996, see Appendix 1) is wholly dependent on electronic communication. A number of studies are beginning to emerge that demonstrate the potential of computer applications to conventional and to open and distance contexts.

Harrington and Hathaway (1994) in the USA, for example, have evaluated computer conferencing and the impact it can have in challenging what intending teachers takes for granted assumptions. The process of conferencing becomes a key issue:

> Because there is some indication from this analysis that as the conference progressed more questions regarding assumptions were being raised by the participants, further study appears to be warranted concerning the relationships between the progression of the conference, the topics of discussion, and the identification and clarification of taken-for-granted assumptions.
>
> (p. 552)

Electronic conferencing is a medium in its own right distinct from the accepted conventions of the written and spoken word. One international study, involving Finland, Japan and the USA, gives useful pointers as to the direction that the new generation of internet-based collaborative learning systems can take (Watabe, et al., 1995).

> New technologies are transforming the ways in which businesses operate and people work, boosting demand for new knowledge and new types of skills. They are providing new alternatives of learning, offering a potential solution to meet challenges such as demand for more flexibility in delivery of education in terms of time, location, content, and form. Students need to be able to learn when they want, where they want, what they need (just-in-time), and in a format appropriate to them.
>
> Distance learning has traditionally been used to give educational opportunities to such groups of students for whom the conventional educational models are not suitable, such as people at work, those studying at home, living in isolated areas, or people with physical limitations. However, the methods that have primarily been used in distance education can also be used to supplement conventional education. For example, alternatives are available to students in large cities who spend much of their time commuting to institutions – or who, for other reasons, prefer completing part of their studies off-campus.
>
> (p. 141)

The authors point to the limitations of conventional delivery mediums (mailed texts, video, radio, TV) that emphasised students' own activity rather than the collaborative learning that interaction among students can promote. The new technologies, they suggest, have the potential to overcome this divide.

By introducing computer-based collaborative learning systems Watabe and others (ibid) foresee the following benefits (see also Alexander, 1992):

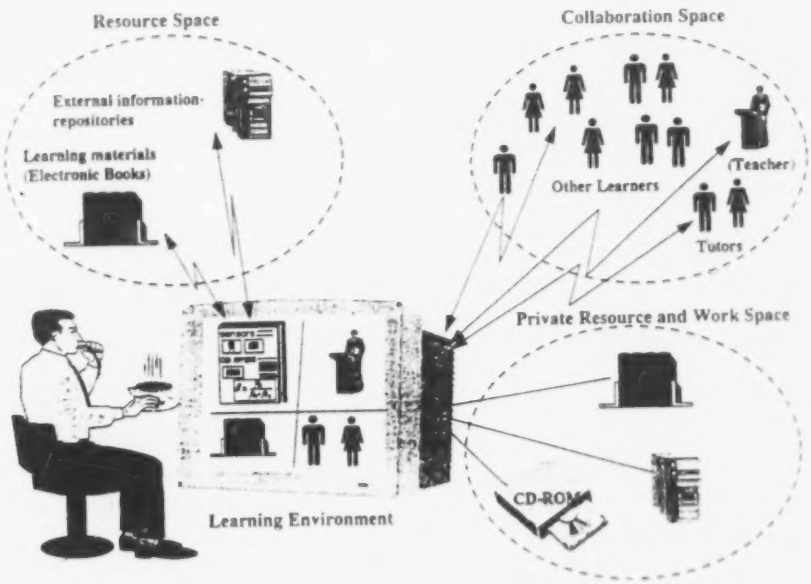
> (1) The students benefit from different perspectives of the material they are learning. The group inherently brings with it a wider range of experience than does an individual member. This enables students to obtain help from their group to tackle larger projects than they could individually.
>
> (2) The learning experience can be structured so that students will find themselves presenting and explaining parts of the material to other students. Discussion with peers can be more relaxed and free than with a teacher. By communicating what they have learned to others, the material will become more integrated into their general understanding ('best was to learn something is to teach it').
>
> (3) Working with groups is highly motivating. A group provides the pace for its members. People want to be seen doing their best. The support and sense of identity provided by the group allays fears and builds confidence.
>
> (p. 142)

The new systems to promote this approach can challenge assumptions about the old distinctions that have been made in computer applications (i.e. asynchronous vs. synchronous, same place vs. remote places, collaborative activity vs. individual activity). These distinctions, it is proposed, will blur in the new models being developed:

> The distinctions that have been made among computer support of different work modes (i.e. asynchronous vs synchronous, same place vs remote places, collaborative activity vs individual activity) need to be blurred. In the conceptual model and actual system implementation, we aim at achieving seamless integration of these different modes for efficient collaborative learning support.
>
> (p. 147)

A conceptual model of collaborative distance learning is set out below.

An Internet based Collaborative Distance Learning System: CODILESS



The designers point out that models for collaborative resource based learning at a distance have already been planned, for example in the UK's OU (Alexander, G. and Mason, R., 1994) but the new model:

> extends them by adding real-time multimedia communication and access to external information sources (i.e. such resources that have not specifically been developed for the course).
>
> The student has learning materials, such as course texts, as well as support material, such as dictionaries and encyclopaedias, available in the learning environment. The student have access to teachers (maybe the developer of learning materials), tutors (advisors), other students, and other information resources (such as online databases). For communicating with the outside world, the student has tools equivalent to a telephone, a fax machine, a TV set, and mail, as tools integrated within the learning environment.
>
> (p. 148)

The Open University's pre-service teacher education programme (the one year Postgraduate Certificate in Education) has over the last five years significantly extended understanding of the theoretical foundations upon which modes of electronic conferencing can be conceptualised. Leach, J. (1996b and 1997), for example, has argued that computer mediated communication supports an egalitarian style of communication in which everyone can participate. She argues that such communication promotes communities of practice very much in line with the theories of situated learning (Lave and Wegner, 1991) which see cognitive change as an attribute of pedagogical relationships in particular settings and contexts. For Leach this mode of dialogue raises three sets of questions:

> The first relates to the metaphors of teaching and learning we use in our e-conferencing:
>
> > How relevant to the practice of e-pedagogy is the image of a traditional university community campus and its academic discourse?
> >
> > How useful are comparisons with traditional models of communication (reading, writing and speaking)?
> >
> > Why employ the metaphors of familiar teaching and learning strategies, recreating electronic versions of linear, 'real time' pedagogy such as lectures, seminars, claustrophobic classrooms? Should we be looking for alternative metaphors of practice?
>
> (Leach, 1997)

The Open University Centre for Research and Development in Teacher Education, building on the sort of analyses set out above, has established a research project to explore the sorts of electronic articulation that are beginning to emerge on web sites for teacher development around the world. Experimentation in this field has reached significant levels. Two examples include:

Teachers.Net *(http://www.teachers.net/)*, for example, not only provides enormous amount of information related to individual teaching activities such as making lesson plans and/or mentoring students but also stimulates teachers' interactive and collaborative actions through its Chat Board and/or Mentor Centre. Teachers share their lesson plans in the Curriculum Bank, discuss pedagogical issues in the Mentor Center, and even find other teaching opportunities in the Teachers.Net Career Centre. Another example is **Web for Schools (WfS) project** (*http://wfs.vub.ac.be/index.html*) organised by the European Community in 1995. This project has aimed to offer various Web-based collaborations among European schools and to

make those schools use the Internet as an alternative or additional tool in a teaching and learning process. Here, teachers and their students publish ongoing Web-based projects, participated schools download necessary software, and everyone can get either technical or pedagogical support from other partners like governments, universities, and industries. More interestingly, regardless of their national or regional focuses, these sites are also fully accessible and available to other teachers in the world.

One of the most important tasks in the next three to five years is to develop a range of new models of teacher support that embrace the potential for interactive communication and the rapid delivery of a rich range of multi-media resources. The commercial imperative to exploit the uses of the media is already apparent. These developments now seem inevitable. The cost of hardware and software will fall significantly. The use of systems will become highly simplified and the speed of response will become almost instantaneous. These present barriers to teacher take-up and use will disappear. As teachers begin to use on-line facilities in their daily lives, for shopping, entertainment, advice service, travel and so forth, so professional use will evolve. For teacher educators a number of research questions arise. To what extent can a web environment of its own accord support teacher development? If forms of face-to-face mediation are appropriate, in what form, and in what contexts, should this be provided? To what extent can groups, or teams, of teachers exploit interactive technologies for mutual advantage? The next few years offer a rich research agenda to explore this, and other issues already mentioned, in advance of the widespread take-up of use envisaged at the turn of the century.

Conclusion: dilemmas

I want to point to four dilemmas that need some resolution as we move, inexorably I suggest, to more loosely structured and open learning models of teacher preparation and development. The first is a transient issue, although significant in the short term. The lack of electronic and media literacy amongst policy makers, and those playing related key roles, inspectors and school principals for example, presents real difficulties. Although the modes of working themselves are now fairly straightforward, there remain sufficient technical problems or folklore of problems, to create obstacles to empathy and understanding. The outcomes range from a total dismissal of the potential, to a total reliance on technical expertise which remains unlinked to the professional and cultural context in which it has to be embedded. Whilst a healthy scepticism can strengthen innovation, it can also stifle. Understanding how rapid developments in technology can be incorporated into the mind frame of well established leaders in any professional community represents an issue for research and study in its own right.

The second dilemma arises from the assertion above that any University can become an Open University, indeed an individual or institution will soon have the potential to attempt this. Should they? I think it is difficult in the anarchic liberalism of, for example a web environment, to say no to anything. But what follows, therefore, is the need for a much stronger articulation of the criteria for quality we might envisage for the new programmes (Moon and Shelton Mayes, 1995a and b; SAIDE, 1996). In respect of the new interactive communities of resource and communication this is relatively uncharted territory. Whilst we are all familiar with the, admittedly debatable, criteria we might use for judging the contents of a bookshop or the books themselves, our antennae in electronic environments remain relatively underdeveloped. Such criteria will evolve with time, but a debate needs joining.

It follows from the above that many institutions will need to develop new models of programme planning and support. I find it difficult to envisage a programme for teachers that does not involve some face to face exchange with colleagues, through locally based self help groups, or through a more formal system of tutorials. Integrating the different aspects of programme planning and taking decisions that are sensitive to and go with the grain of local contexts is a complex process. This is more fully developed in a Handbook developed as part

of a recent survey of open learning and teacher education in Europe (Hobbs, Moon and Banks, 1997). Little training or support, however, for these new forms of programme design and development and presentation exist, however, outside the institutions of open learning.

My final dilemma is perhaps the most significant of all. Teacher education, as I suggested earlier, is now a global process. Our experience, expertise and, language allowing, our resources and communities of exchange can be accessed in any part of the world. In all parts of the world, encouraged in large measure by international organisations, programmes using new technologies and some form of open learning are developing. With this globalisation, however, comes dangers. First, the temptation to see this as the panacea for grave teacher inadequacies in many parts of the world is there. Satellite video conferencing, for example, has been funded in a range of countries with little thought as to how it might be used and developed. Second, the technology can be used to reinforce the invidious divide between richer and poorer nations with the technical expertise of the former creating a new form of dependency or obligation that many of us are seeking to move out of as we move into a new millennium. Research and discussion around teacher education, like the communities it arises from, still tends to reinforce the divide between North America and Northern European concerns and those of the countries to the south. And from this comes my last concern. When you look at the growing body of literature on teacher development, particularly that in English concerned with international programmes and projects, I discern a strong domination of models that have arisen from the debate now prevalent in Europe and North America. There are references to a 'new pedagogy' and the need to move away from traditionally authoritarian models of teaching to create more autonomous learners, able to construct their own learning and with teachers playing a more individualistic or group oriented role than was traditionally the case. None of this, from the security of a northern European base, would I dispute. I have a growing concern, however, about the way such a development orthodoxy fits alongside the very different cultural conditions we find in so many parts of the world and the very different economic circumstances we know exist. How does this approach sit in the context of mainstream Islamic traditions? Is it appropriate to try to reconceptualise the concept of teacher authority in certain ways where 'respect for elders' and that form of respect for teachers has far greater significance than in Birmingham Alabama or Birmingham UK? Advocacy of the need to develop stronger perceptions of group, or even project work, sound different to a teacher with a resourced class of twenty five than to someone with a class of seventy or eighty in a room without books or adequate ventilation.

With global communities of interest beginning to emerge in teacher education we need to watch cautiously for orthodoxies that fail to respect culture or place. The power of new technologies harnessed to more open forms of teaching and learning has the potential to contribute to the sorts of values espoused by the new South African government. Equally, however, orthodoxies can acquire unchallenged status.

The working out of these, and other, dilemmas will be an important feature of the development of the new generation of teacher education programmes. We will, as the opening to this paper suggests, need to think beyond the confines of present models and assumptions. New experience of practice must lead to a stronger theoretical basis of understanding the way teachers can be served by new, more dignified, models of support. The next few years, into the new millennium, represents an important opportunity for rethinking and redirecting open and distance forms of organisation. International co-operation in research and the sharing of experience will be a crucial element in this process.

Author note:

I would like to record my appreciation to staff from the Centre for Research and Development in Teacher Education who provided very helpful critiques of this paper in draft.

Bob Moon is Professor of Education, and Director of the Centre for Research and Development in Teacher Education at the Open University.

Address:

Centre for Research in Teacher Education
School of Education
The Open University
Walton Hall,
Milton Keynes
MK7 6AA
United Kingdom

Tel: (01908) 652374
Fax: (01908) 652218
E-mail: r.e.moon@open.ac.uk
WWW: http://soe.open.ac.uk/crete/index.htm

References

ALEXANDER, G. (1992) 'Designing human interfaces to promote collaborative learning', *Collaborative Learning Through Computer Conferencing: The Najaden Papers* (KAYE, A. R. ed.), NATO ASI Series, New York, Springer.

ALEXANDER, G. and MASON, R. (1994) *Innovating at the OU: resource based collaboration learning on line*, CITE Report No. 195, Centre for Information Technology in Education, The Open University.

BAKER, A. and PATTI, R. (1993) 'Definitions of international learning: what we see is not what we get', *Journal of Instruction Delivery Systems*, **7:3**, pp. 36–9.

BATES, A. W. (1991) 'Third generation distance education: the challenge of new technology', *Research in Distance Education*, **3:2**, pp.10–15.

BOURDILLON, H. and BURGESS, H. (1998) *Open learning, new technologies and the development of a new model of pre-service education and training, The Open University UK experience.* Paper presented to the 1998 AERA Conference, San Diego, April 12–17.

BRUNER, J. (1996) *The Culture of Education*, Cambridge, Mass., Harvard University Press.

BUCHANAN, P. (1993) 'Project INSITE: developing telecommunications skills for teachers and students', *Journal of Computers in Mathematics and Science Teaching*, **12:3-4**, pp. 245–60.

CONGRESS OF THE USA (1993) Technology for Education Act of 1993 seminar July 21, Congress of the USA.

COUNCIL OF EUROPE (1989a) *The Information Society. A Challenge for Education Policies?*, Strasbourg.

COUNCIL OF EUROPE (1989b) *The Information Society: A Challenge for Educational Policies? Policy Options and Implementation Strategies.*

DOUGLAS, N. (1993) 'Interactive radio as a component of distance education in Third World countries', paper presented at the National Third World Studies Conference (Oriana).

EGAN, M. (1993) 'Rural pre-service teacher preparation using two way interactive television', *Rural Special Education Quality*, **9:3**, pp. 27–37.

FARKAS, P., CORNELL, R., SAAR, C., ARMSTRONG, J. (1993) *An International Survey of Distance Education and Teacher Training: From Smoke Signals to Satellites.* Report produced for the Innovation and Development Sub-Committee of the International Council for Educational Media, University of Florida.

FULTON, K. (1993) 'Teaching matters: the role of technology in education', *Educational Technology Review*, Fall/Winter, pp. 5–10.

HARRINGTON, H. L. and HATHAWAY, R. S. (1994) 'Computer conferencing, critical reflection and teacher development', *Teaching and Teacher Education*, **10:5**, pp. 543–54.

HEDBERG, J. G. and HARPER, B. (1993) 'Supporting and developing teachers through telecommunications', *Educational Media International*, **30:2**, pp. 88–93.

HOBBS, S., MOON, B. and BANKS, F. (1997) *Open and Distance Education, New Technologies and the Development of Teacher Education in Europe: a Handbook*, Milton Keynes, The Open University.

KUZNETSOV, E. I. (1991) 'A new type of specialist is needed', *Soviet Education*, **33:3**, pp. 15–23.

LAURILLARD, D. (1990) 'Mediating the Message: programme design and students' understanding', PLUM Paper No. 3, Institute for Educational Technology (Milton Keynes, The Open University).

LAVE, J. and WEGNER, E. (1991) *Situated Learning: Legitimate Peripheral Participation*, Cambridge, Cambridge University Press.

LEACH, J. (1996a) 'Learning in practice: professional development through open learning', in TAIT, A. and MILLS, R. (eds) *Supporting the Learner in Open and Distance Learning*, London, Longman.

LEACH, J. (1996b) 'Teacher Education - On Line!', *Educational Leadership*, **54**(3), November 1996.

LEACH, J. (1997) *Teacher Education On-line: 'the social' in the formation of teachers of English*, presented at the European Educational Research Association conference, Frankfurt, September 24th–27th 1997.

LEACH, J. and MOON, B. (1997) *Towards a new generation of open learning programmes in teacher education*. Paper presented at the Distance Education for Teacher Development Colloquium. Global Knowledge 97 Conference, Toronto, Canada, June 23–25 1997.

LEACH, J. and SWARBRICK, A. (1996) *Learning from each other: computer mediated conferencing in an initial teacher education programme*. Paper presented at European Distance Education Network (EDEN) Conference, Poitiers, France, July 1996.

LEACH, J. and LITA, Z. (1998) *Teacher Education in Adversity: Albania's Kualida Project, 1994–1998*. Paper presented to the 1998 AERA Conference, San Diego, April 12–17.

MCKINNON, D. K. and SINCLAIR, K. (1987) 'Teachers training teachers: a concerns based approach to computer inservice education', *Australian Educational Researcher*, **15:2**, pp. 53–70.

METZ, J. M. (1994) 'Computer mediated communication. Literature review of a new context', *IPCT Interpersonal Computing and Technology: An Electronic Journal for the 21st Century* **2:2**, pp. 31–49.

MOON, B. (1995) *Teacher Education, Open Learning and the Use of Information Technology: an International Perspective*. Report prepared for UNESCO.

MOON, B. (1996). 'Practical experience in teacher education: charting a European agenda', *European Journal of Teacher Education*, 19:3, pp. 217-250.

MOON, B. (1997 forthcoming) 'Open learning and new technologies in teacher education: new paradigms for development', *European Journal of Teacher Education*, **20:1**.

MOON, B. and SHELTON MAYES, A. (1995a) 'Integrating values into the assessment of teachers in initial education and training', in KERRY, T. and SHELTON MAYES, A. (eds) *Issues in Mentoring*, London, Routledge.

MOON, B. and SHELTON MAYES, A. (1995b) 'Frameworks, competences and quality: open learning dimensions to initial teacher education and training', in BINES, H. and WELTON, J. M. (eds), *Managing Partnership In Teacher Training And Development*, London, Routledge.

NEAVE, G. (1992) *The Teaching Nation. Prospects for Teachers in the European Community*, Oxford, Pergamon.

NIPPER, S. (1989) 'Third generation distance learning and computer conferencing', in MANON, R. and KAYE, A. *Mindweave: Communication, Computers and Distance Education*, Oxford, Pergamon.

OECD (1992) Education and New Information Technologies. Teacher Training and Research. A survey of co-operative projects between universities and schools. Paris.

PELTON, J. (1991) 'Technology and education: friend or foe?', *Research in Distance Education*, **3:2**, pp. 2–9.

PERKINS, J. and NEWMAN, K. (1995) *Lurkers and Virtuosos in E-Discussion*, Ontario, Lakehead University.

PERRATON, H. (ed.) (1993) *Distance Education for Teacher Training*, London, Routledge.

PLATTEN, M. R. and BRUCE, B. O. (1987) *Texas Tech University's Model of Teaching Over Satellite*, Texas, Texas Technical University.

PORTER, R. (1983) 'The implications of the domestic satellite for the in-service education of teachers in rural and remote areas', *The South Pacific Journal of Teacher Education*, **11:2**, pp. 54–59.

POTASHNIK, M. (1996) *Teacher Education at a Distance*.

POTASHNIK, M. (1996) 'Chile's learning network', *Education and Technology Series*, **1:2**, Washington, World Bank.

PRAIN, V. and BOOTH, T. (1993) 'Using interactive television to deliver professional development programmes in rural Australia', *Education in Rural Australia*, **3:2**, pp. 5–10.

REDDY, S. (1986) 'Educational radio: directions in the Pacific', *Media in Educational Development*, **19:1**, pp. 34–37.

ROBSON, J., ROUTCLIFFE, P. and FITZGERALD, R. (1992) 'Remote schooling and information technology', *Education in Rural Australia*, **2:2**, pp. 33–36.

RUSSELL, T. L. (1993) 'A medium revisited: televised distance education', in DAVIES, G. and SAMWAYS, B. (eds) *Teleteaching: Proceedings of the IFIPTC3 Third Teleteaching Conference*, Trondheim, Norway.

RHYS, ?? (1988) 'Teacher education and change. The first decade of IT', *European Journal of Teacher Education*, **11:2/3**, pp. 195–205.

SAIDE (1996) *Teacher Education Offered at a Distance in South African*, Johannesburg, South African Institute for Distance Education.

SOUTH AFRICAN MINISTRY OF EDUCATION (1996) *National Policy on Teacher Supply, Utilization and Development*, Pretoria.

VAN HORN, C. and DORIS, A. (1993) 'Technology and the future of education', paper presented at the National Conference of the CSU Institute of Teaching and Learning. Quality, Creativity and Research, San Jose, California.

VEEN, W., COLLINS, B., DEVRIES, P. and VOZELZAY, F. (1994) 'Telematics in education: the European case', *Academic Book Centre*, De Lier, Netherlands.

WATABE, K., HAMALAINEN, M. and WHINSTON, A. B. (1995) 'An internet based collaborative distance learning system: CODILESS', *Computers in Education*, **24:3**, pp. 141–55.

YATES, S. (1996) 'Computer mediated english: sociolinguistic aspects of CMC', in MAYBIN, J. and MERCER, N. *Using English: from Conversation to Canon*, London, Routledge.

APPENDIX 1

The Enlaces Project, Chile

This interactive, multi-media pilot project is part of a series of projects developed in Santiago. Schools and teachers have been provided with the hardware to establish electronic communications locally and, in some instances, more widely through national and international collaboration. It illustrates the interrelationships that can be established between technological initiatives to improve school performance and the development of new models of teacher education.

The project has developed an innovative system to provide easy to use software in an imaginative format. The point of access to the system on screen is **La Plaza**. La Plaza is a metaphor that everyone is familiar with. Teachers can move from this access point to a Post Office, a Kiosk, a Museum, and a Cultural Centre. The software graphics are bold and well-designed.

The '**Post Office**' is an electronic mail system. Teachers, as opposed to their students, initially used the post office tentatively but it is growing in popularity as experience of interaction increases. **The Kiosk** offers a window for more dynamic information. Multi-media based newspapers with text, graphics, sound, animation, and video clips are being developed by teachers. **The Museum** is an information centre providing a database of experiences and demonstrations. **The Cultural Centre** is a meeting place for developing longer and more structured collaborative projects than those in the Kiosk. The Cultural Centre is the place for teacher communication at the local, regional, national, and international level. This is providing an important stimulus to professional development in a country with little tradition of such developments. The teachers working with the indigenous Mapuche Indians, for example, who have no written language, are developing multi-media methods to record a sound dictionary in Apuche to keep the language alive. Electronic conferencing underpins this project. First reports point to the early success of the programme.

An initial evaluation confirmed that, prior to the training, 25 per cent of the participating teachers believed that they would never be capable of handling a computer; 23.3 per cent believed that owing to their high cost, the computers would never reach their schools; 18.5 per cent feared that if they mishandled the computer it would break or explode; and 12 per cent said they feared the computers could end up replacing the teacher. Only 0.2 per cent of the teachers evaluated had prior experience with computers.

Once the training was completed, 97 per cent of the participating teachers stated that they had developed a significantly more positive attitude toward computers; despite their need for considerably more practice in the use of the computers, 70 per cent of the teachers felt that they could adequately utilise the computer to support their normal educational activities.

BEST COPY AVAILABLE